NPS injecting and severe infection:
A public health led response

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Objectives

• To describe the outbreak
• To discuss the multi-agency response which was initiated to investigate this outbreak
• To describe and appraise the risk management activities carried out
• To discuss some of the challenges and lessons learnt in responding to this outbreak and highlight areas of ongoing work
What are NPS?

Advisory Council on the Misuse of Drugs (ACMD):

‘psychoactive drugs which are not prohibited by the United Nations Single Convention on Narcotic Drugs or by the Misuse of Drugs Act 1971, and which people are seeking for intoxicant use’
The Drugs Wheel: http://www.thedrugswheel.com/

Outer Ring: Controlled or regulated in the UK

Inner Ring: Legal in the UK

The Drugs Wheel: http://www.thedrugswheel.com/
Injecting of NPS

• Injecting behaviours
  – Frequency
  – Technique / injection sites
  – Sharing of injecting equipment

• Wounds

• Infections
  – Skin and Soft Tissue Infections
  – Blood Borne Virus Infections
Harm Reduction Service

- Injecting Equipment Provider (IEP) data
  - City centre site / NEON bus / pharmacies

- ‘Test for Change’
  - Survey of service users: questionnaires and focus groups
  - Additional harm reduction and outreach services
  - Targeted wound care services
Wounds associated with injecting of NPS

- Issues with number and severity of wounds
- Extensive damage to veins – injecting into risky sites
- Injecting into wounds
- Worsened by tactile hallucinations
- Impact of chaotic lifestyle on compliance with wound care

Specialist services input:
- Harm reduction services
- Tissue viability services
Wound Infections associated with injecting of NPS

Staphylococcus aureus

- Natural bacterial flora
- Nose, throat, groin, skin
- Cause infection when bacteria get into a break in the skin e.g. injection site
  - Skin and soft tissue infection
  - Invasive infection (bacteraemia)

Strep pyogenes (group A strep)

- Vary in severity
- Nose, throat, groin, skin
- Person to person spread or spread on drug paraphernalia
  - Minor infection
  - Invasive infection e.g. necrotising fasciitis
Infections in PWID: Epidemiology

‘Those who have acquired a GAS, staphylococcal aureus or other skin or soft tissue infection through injecting drug use or have a connection to injecting drug users.’

- 214 cases since October 2014
- Varying severity
- Association with injection of ethylphenidate-based NPS
- Demographics: Edinburgh/East Lothian; male predominance; older age groups
### Epidemiology: Cases by type of infection

<table>
<thead>
<tr>
<th>Infection</th>
<th>Number of Cases</th>
<th>Percentage of all cases (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of cases streptococcal and/or staphylococcal infections</td>
<td>201</td>
<td>93.9</td>
</tr>
<tr>
<td><em>Streptococcus pyogenes</em> Group A</td>
<td>27</td>
<td>13.4</td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em></td>
<td>99</td>
<td>49.8</td>
</tr>
<tr>
<td><em>Streptococcus pyogenes</em> Group A and <em>Staphylococcus aureus</em></td>
<td>75</td>
<td>36.8</td>
</tr>
<tr>
<td>Number of cases with Other soft tissue infection</td>
<td>10</td>
<td>4.7</td>
</tr>
<tr>
<td>No growth but clinical signs of infection</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>214</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

![Bar chart showing number of cases by type of infection from 2014 to 2015](chart.png)
Epidemiology: Type of infection by drug use

<table>
<thead>
<tr>
<th>Infection</th>
<th>NPS use (%)</th>
<th>IVDU (heroin) (%)</th>
<th>IVDU (unknown type) (%)</th>
<th>Ex-IVDU (%)</th>
<th>Other (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streptococcus pyogenes</td>
<td>15 (55.5)</td>
<td>4 (14.8)</td>
<td>4 (14.8)</td>
<td>0 (0)</td>
<td>4 (14.8)</td>
<td>27</td>
</tr>
<tr>
<td>Staphylococcus aureus</td>
<td>56 (56)</td>
<td>12 (12)</td>
<td>18 (18)</td>
<td>6 (6)</td>
<td>7 (7)</td>
<td>99</td>
</tr>
<tr>
<td>Streptococcus pyogenes and Staphylococcus aureus</td>
<td>54 (72.0)</td>
<td>6 (8.1)</td>
<td>6 (8.1)</td>
<td>4 (5.4)</td>
<td>5 (6.8)</td>
<td>75</td>
</tr>
<tr>
<td>Total</td>
<td>125 (62.2)</td>
<td>22 (10.9)</td>
<td>28 (13.9)</td>
<td>10 (5.0)</td>
<td>16 (8.0)</td>
<td>201</td>
</tr>
</tbody>
</table>

- In total 92.3% of cases (n=201) reported either currently injecting drugs or were known to have a history of injecting drug use
- NPS was reported in over 50% of cases across all infection categories
- NPS particularly linked to the risk of co-infection: 72% of cases where S. pyogenes and S. aureus were both isolated reported NPS use
Infections in PWID: Impact

- Clinical services:

<table>
<thead>
<tr>
<th>Total length of stay (days)</th>
<th>Number of cases</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not admitted to hospital</td>
<td>37</td>
<td>17.3</td>
</tr>
<tr>
<td>1</td>
<td>66</td>
<td>30.8</td>
</tr>
<tr>
<td>2-5</td>
<td>36</td>
<td>16.8</td>
</tr>
<tr>
<td>6-10</td>
<td>33</td>
<td>15.4</td>
</tr>
<tr>
<td>11-20</td>
<td>37</td>
<td>17.2</td>
</tr>
<tr>
<td>21-30</td>
<td>17</td>
<td>7.9</td>
</tr>
<tr>
<td>More than 31 days</td>
<td>31</td>
<td>14.4</td>
</tr>
<tr>
<td>Chronic</td>
<td>17</td>
<td>7.9</td>
</tr>
<tr>
<td>Total</td>
<td>214</td>
<td>100</td>
</tr>
</tbody>
</table>

- Wider health services; Harm Reduction Services; Police Scotland; Local authority; Third sector partners
Infections in PWID: Response

Risk Management
• Regular meetings of multiagency IMT
• Questionnaire to gather data
• Sampling of product
• Attempts at contact tracing
• Consideration of epidemiological studies
• Consideration of antibiotic prophylaxis

Risk Communication
• Updates to healthcare professionals
• Updates to LA colleagues
• Information produced for public / service users
• Letter from DPH to head shops
• Media coverage
• Partnership working
Legislative changes

• Across the UK:
  – ACMD issued a Temporary Class Drug Order which was enacted on 8th April 2015 criminalising the sale and distribution of ethylphenidate-based compounds
  – Psychoactive Substances Bill has been agreed by both House of Commons and House of Lords and is now an Act of Parliament
    • Further information:

• In Edinburgh:
  – Trading Standards submitted an application to the Procurator Fiscal to secure a General Product Safety Regulation Forfeiture Order against NPS in Edinburgh
  – This was obtained in October 2015
  – Upheld in respect to 2 head shops on 15th October. Thereafter all known retailers in Edinburgh voluntarily agreed to cease trading
Conclusions

- Large outbreak of localised and invasive infections in PWID in Lothian between October 2014 – October 2015
- Detailed surveillance identified injection of ethylphenidate containing NPS compounds as being common in nearly all cases
- Chaotic behaviours and frequency of injecting associated with NPS use contributed to the spread of infection in the atisk population
- Public health intervention to manage the outbreak was challenging: chaotic behaviour, poor treatment compliance, late presentation
- Introduction of legislative change led to a reduction in availability of ethylphenidate and appears to have contributed significantly to fall in case numbers
Lessons Learned

• Illustrates success of multi agency working on this scale to address a complex and evolving issue

• Several strands of work, not specific to outbreak management, which are continuing
  – HPS, NESI, Harm reduction service, Pan Lothian Work Group
Questions?